

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2002-047383

(43)Date of publication of application : 12.02.2002

(51)Int.Cl. C08L 23/10
B32B 27/32
B65D 65/02
B65D 65/40
C08F 4/625
C08F 10/06
C08J 5/18

(21)Application number : 2001-138654

(71)Applicant : IDEMITSU PETROCHEM CO LTD

(22)Date of filing : 09.05.2001

(72)Inventor : SETA YASUSHI
ENDO MASAHIKO

(30)Priority

Priority number : 2000151446 Priority date : 23.05.2000 Priority country : JP

(54) WRAPPING FILM

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a wrapping film having an excellent characteristic such as a wrapping property, transparency, a deformation recovery property, penetration resistance, etc., and at the same time not containing chlorine, and having environment-friendly properties, that is, having no risk to generate a hazardous substance such as hydrogen chloride, dioxins, etc., during incinerating the waste of the wrapping film.

SOLUTION: This wrapping film is formed from a resin composition consisting of a propylene polymer [I] of 1-99 mass parts satisfying following (1) and (2), wherein; (1) the meso pentad fraction (mmmm) is 0.2 to 0.6, (2) the relation between raceme pentad fraction (rrrr) and (1-mmmm) satisfies the following equation; $[rrrr/(1-mmmm)] \leq 0.1$, and an olefinic polymer [II] of 99-1 mass parts.

LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

Copyright (C); 1998,2003 Japan Patent Office

* NOTICES *

JPO and NCIP are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the wrap film with which can be satisfied of demand characteristics as a wrap film, such as wrapping nature, transparency, and deformation stability, while it is environment-friendly and excellent in safety about business use or a home wrap film excluding especially chlorine.

[0002]

[Description of the Prior Art] Conventionally, cooked food, such as vegetables and fruits, prime meat, fishes or these processed foods, and a daily dish, etc. is put on the tray made of lightweight foaming resin, is wrapped with a film, and is sold in the department store, the supermarket, the grocery store, etc. Moreover, also at the home, putting in and wrapping a container etc. in the cases at the time of the preservation in refrigeration of food, refrigeration, etc. and heating with a microwave oven etc. is performed.

[0003] As this wrapping film, properties at the time of pushing with fluoroscopy nature, a wrapping result appearance, wrapping effectiveness, anti-stick property, and a finger, such as deformation stability, are searched for. Generally as a film with which can be satisfied of these wrapping properties, polyvinyl chloride system resin, such as a polyvinyl chloride (PVC) and a polyvinylidene chloride (PVDC), is used so much.

[0004] However, since polyvinyl chloride system resin, such as a polyvinyl chloride (PVC) and a polyvinylidene chloride (PVDC), contains chlorine in the molecular structure, generating harmful hydrogen chloride gas, dioxin, etc. by incineration processing after being discarded after the activity has been regarded as questionable from an environmental side. Furthermore, elution of the plasticizer blended so much because of elasticity-izing as a wrap film is also regarded as questionable from a viewpoint of safety.

[0005] For the dissolution of these troubles, the attempt which uses a polyethylene system film and a polypropylene system film is also made, and the part is put in practical use. However, a polyethylene system film has low thermal resistance, although a low-temperature property is good, and although the thermal resistance of a polypropylene system film is high, there is a trouble that a low-temperature property is low. furthermore, a polyethylene system and a polypropylene system -- whichever it is in, there is a trouble that the adhesion to a tray etc. and the adhesion of films are inadequate.

[0006] For this reason, for example, the various proposals of the approach of blending ethylene-propylene rubber, a styrene-ethylene-butylene-styrene block copolymer, conversion polyolefine, polybutene, hydrocarbon resin, an adhesive grant assistant, etc. with propylene system resin are made. However, these compounding agents do not necessarily have enough compatibility with a polypropylene resin, and have new troubles, such as a surface dry area, lowering of transparency, lowering of film production nature, or bleeding of the low molecular weight compound which is an adhesive grant assistant.

[0007] As other wrap films, a polypropylene resin (A) 50 - 98 mass sections, and a consistency are 0.900 g/cm³ in JP,11-29967,A. The wrap film which becomes the wrap film and JP,11-29968,A which were formed from the resin constituent which consists of the following ethylene-

alpha olefin copolymers (B) 2 – the 50 mass sections from the resin constituent which carries out fats-and-oils (B) 1–15 mass section content to the polypropylene resin (A) 100 mass section is indicated. However, in order to secure the adhesiveness as a wrap film, addition of low molecular weight compounds, such as polybutene and fats and oils, is not substantially different from the conventional approach at all from a required point.

[0008] In JP,2000-44742,A, it is a 80 or more-(b) isotactic characteristic. Contain the ethylene of the polypropylene component which it has, 20 to 60 mass %, and (b) 50 – 95 mass %. The crystal component (I) and 25 – 95 mass % which are the copolymer component of ethylene and a with a carbon numbers of four or more olefin, and have insoluble crystalline polyethylene in the xylene in 25 degrees C, The film containing the elasticity polypropylene resin which becomes 25-degree-C xylene from the amorphism component (II) which is fusibility, the copolymer component which consists of 5 – 75 mass %, and 40 – 80 mass % is indicated. However, it is not that in which the assessment as a wrap film is the multilayer film which made not a monolayer film but the propylene-ethylene-butene-1 copolymer, and the ethylene-vinylacetate copolymer both outer layers, and the property as a wrap film employed the polypropylene resin efficiently substantially, and the level of transparency is not enough, either.

[0009] therefore, the wrap film which it does not attain to the level of the wrap film of polyvinyl chloride system resin although the wrap film which consists of polyolefine system resin which does not contain these chlorine can solve the problem of a resistance to environment, but still consists of polyvinyl chloride system resin -- width -- the actual condition is used widely.

[0010]

[Problem(s) to be Solved by the Invention] This invention does not contain chlorine but aims at offering a wrap film gentle to earth environment without fear of generating of harmful matter, such as a hydrogen chloride which originates in chlorine at the time of abolition incineration, and dioxin, while it has properties as a wrap film, such as wrapping nature, transparency, deformation stability, and anti-stick property.

[0011]

[Means for Solving the Problem] In order that this invention persons may attain the above-mentioned object, as a result of repeating examination wholeheartedly, the film which comes to produce a film the constituent which consists of a specific propylene polymer and a specific olefin system polymer came to complete a header and this invention for the ability of this object to be attained. Namely, summary of this invention [1] Propylene polymer [which fills following (1) and (2)] [I] 1 – 99 mass %, (1) Meso pentad molar fraction (mmmm(s)) are 0.2–0.6. (2) Wrap film which it comes to form from the resin constituent which consists of $[rrrr/(1-mmmm)] \leq 0.1$, and olefin system polymer [II] 99 – 1 mass % with which a raceme pentad molar fraction (rrrr) and (1-mmmm) fill the following relation.

[2] The wrap film of the aforementioned [1] publication which is the propylene polymer with which a propylene polymer [I] fills following (3).

(3) Limiting viscosity measured at 135 degrees C among the tetralin $[\eta]$ It is 1–3 deciliters/g

[3]. Wrap film the above [1] which is the propylene polymer with which a propylene polymer [I] fills following (4), or given in [2].

(4) The amount of components (W25) eluted below 25 degrees C in temperature programmed chromatography is 20 to 100 mass % [4]. Wrap film given in either of aforementioned [1]– [3] by which a polymerization is carried out using the metallocene catalyst with which a propylene polymer [I] consists of a transition-metals compound which comes to form the structure of cross linkage through two bridge formation radicals, and a co-catalyst.

[5] A wrap film given in either of aforementioned [1]– [4] whose olefin system polymers [II] are propylene system polymers.

[6] Offer the multilayer wrap film which has at least one layer of layers which become either of aforementioned [1]– [5] from the resin constituent of a publication.

[0012]

[Embodiment of the Invention] The wrap film of this invention consists of a film formed from the resin constituent which consists of specific propylene polymer [I] 99 – 1 mass % and olefin system polymer [II] 1 – 99 mass %. That is, the wrap film of this invention is a wrap film which

comes to produce a film the resin constituent which contains this specific propylene polymer as an indispensable component. Hereafter, the wrap film of this invention is explained in detail.

[0013] The specific propylene polymer [I] used with the wrap film of this invention fills following (1) and (2).

(1) As a propylene polymer [I] in $[rrrr/(1-mmmm)] \leq 0.1$ this invention with which (2) raceme-pentad molar fraction (rrrr) whose meso pentad molar fractions (mmmm) are 0.2–0.6, and (1-mmmm) fill the following relation Although what is necessary is just to fill said range, it is desirable that meso pentad molar fractions (mmmm) are 0.3–0.5. It is desirable that a raceme pentad molar fraction (rrrr) and (1-mmmm) are $[rrrr/(1-mmmm)] \leq 0.08$. It is more desirable that it is $[rrrr/(1-mmmm)] \leq 0.06$, and it is desirable that it is especially $[rrrr/(1-mmmm)] \leq 0.05$.

[0014] It becomes impossible that it is hard to secure the wrapping nature which is a property that the film which produced the constituent and was obtained is required as a wrap film, flexibility, transparency, deformation stability, anti-stick property, etc. when (1) meso pentad molar fraction (mmmm) of a propylene polymer [I] exceeds 0.6, and when (2) raceme-pentad molar fraction (rrrr) and the relation of (1-mmmm) are not filled. When (1) meso pentad molar fraction (mmmm) is less than 0.2, it becomes moreover, less suitable [as a wrap film] from film production stability, trouble generating by the bleeding of an additive, strong lowering, etc.

[0015] The meso pentad molar fraction (mmmm) which specifies the propylene polymer [I] used by this invention is a meso molar fraction in the pentad unit in the polypropylene chain measured with the signal of the methyl group of ^{13}C -NMR spectrum based on the approach proposed by ray Zhang Berry (A. Zambelli) etc. by "Macromolecules, 6,925 (1973)." If this becomes large, it means that stereoregularity becomes high. It may become difficult less than by 0.2 to produce a film the meso pentad molar fraction (mmmm) of said propylene polymer by the stickiness nature of a film. Moreover, if 0.6 is exceeded, wrapping nature may become enough neither by flexibility nor adhesive lowering.

[0016] Similarly a raceme pentad molar fraction (rrrr) is a racemic molar fraction in the pentad unit in a polypropylene chain. $[rrrr/(1-mmmm)]$ is an index with which it asks from the molar fraction of the above-mentioned pentad unit, and the uniformity of stereoregularity distribution of a propylene polymer is expressed. It means that transparency falls, while stereoregularity distribution will serve as mixture of high stereoregularity polypropylene (PP) and amorphous polypropylene (APP) like the conventional polypropylene manufactured using breadth and the existing catalyst system, stickiness will increase and film production nature will get worse, if this value becomes large. It becomes the cause for which $[rrrr/(1-mmmm)]$ of said propylene polymer [I] exceeds 0.1, which was able to fly and to attach.

[0017] In addition, measurement of ^{13}C -NMR spectrum is performed on following equipment and following conditions according to attribution of the peak proposed by ray Zhang Berry (A. Zambelli) etc. by "Macromolecules, 8,687 (1975)."

[0018]

equipment: -- JNM-EXby JEOL Co., Ltd. 400 mold ^{13}C -NMR equipment approach: -- proton perfect decoupling method concentration: -- 220mg [/ml] solvent: -- mixed solvent temperature [of 90:10 (capacity factor)]: of 1,2,4-trichlorobenzene and heavy benzene -- 130-degree-C pulse width: -- 45-degree pulse repetition-time: -- 4-second addition: -- 10,000 times

[0019] As a specific propylene polymer [I] used by this invention, it is the limiting viscosity measured at 135 degrees C other than said requirements among (3) tetralin solvent. [eta] What is 1–3 deciliters/g is desirable. This limiting viscosity [eta] Especially when the T dies casting shaping approach is adopted with regards to the film production nature of a film and 1.0–2.5 deciliters [g] /and the inflation-molding approach are adopted, g is desirable in 1.5–3.0 deciliters /. In here [eta] When film production nature falls ing in less than 1 deciliter /and g is exceeded in 3 deciliters /, melt viscosity will be high, a fluidity will fall and film production nature will fall similarly.

[0020] Furthermore, it is desirable that the amount of components (W25) eluted below 25 degrees C in (4) temperature programmed chromatography besides the requirements of the above (1), (2), and (3) is 20 – 100 mass %, and further 50 – 100 mass % are more desirable. W25 is the amount (mass %) of the component eluted without adsorbing a bulking agent in the column

Y. When Y shows a Lewis base and has two or more Y, even if two or more Y is the same, it may differ. other Y, E1, and E2 or X — constructing a bridge — **** — A1 And A2 It is the bridge formation radical of the bivalence which combines two ligands. The hydrocarbon group of carbon numbers 1-20, the halogen content hydrocarbon group of carbon numbers 1-20, A silicon content radical, a germanium content radical, a tin content radical, -O-, -CO-, -S-, -SO2-, -Se-, -NR1-, --1-, -P(O) R1-, -BR1- or -AlR1- is shown and it is R1. The hydrocarbon group of a hydrogen atom, a halogen atom, and carbon numbers 1-20 or the halogen content hydrocarbon group of carbon numbers 1-20 is shown, and even if they are mutually the same, they may differ. q shows [(valence of M) -2] for the integer of 1-5, and r shows the integer of 0-3.] The approach of carrying out copolymerization of homopolymerization of a propylene, or a propylene and a small amount of alpha olefins of other is mentioned under existence of the catalyst for polymerizations containing the co-catalyst component chosen from the compound (B-1) and aluminosilane (B-2) which come out, react with the transition-metals compound (A) expressed, the transition-metals compound of a ** (A) component as a co-catalyst (B), or its derivative, and can form the complex of ionicity.

[0027] As an example of a transition-metals compound expressed with a general formula (1) (2 (1, 2'-dimethyl silylene)) [1'] - Dimethyl silylene screw (3-n-butyl indenyl) zirconium dichloride, screw (2 (1, 2'-dimethyl silylene), 1'-dimethyl silylene) (3-trimethylsilylmethyl indenyl) zirconium dichloride (1), [2'] - Dimethyl silylene (2, 1'-dimethyl silylene) screw (3-phenyl indenyl) zirconium dichloride, screw (2 (1, 2'-dimethyl silylene), 1'-dimethyl silylene) (4, 5-benzo indenyl) zirconium dichloride (1), [2'] - Dimethyl silylene (2, 1'-dimethyl silylene) Screw (4-isopropyl indenyl) zirconium dichloride, screw (2 (1, 2'-dimethyl silylene), 1'-dimethyl silylene) (5, 6-dimethyl indenyl) zirconium dichloride (1), [2'] - Dimethyl silylene (2, 1'-dimethyl silylene) Screw (4, 7-di-i-propyl indenyl) zirconium dichloride, screw (2 (1, 2'-dimethyl silylene), 1'-dimethyl silylene) (4-phenyl indenyl) zirconium dichloride (1), [2'] - Dimethyl silylene (2, 1'-dimethyl silylene) Screw (3-methyl-4-i-propyl indenyl) zirconium dichloride, screw (2 (1, 2'-dimethyl silylene), 1'-dimethyl silylene) (5, 6-benzo indenyl) zirconium dichloride (1), [2'] - Dimethyl silylene (2, 1'-isopropylidene)-screw (indenyl) zirconium dichloride, - (2 (1, 2'-dimethyl silylene), 1'-isopropylidene) screw (3-methyl indenyl) zirconium dichloride (1), [2'] - Dimethyl silylene (2 and 1'-isopropylidene)-screw (3-i-propyl indenyl) zirconium dichloride, - (2 (1, 2'-dimethyl silylene), 1'-isopropylidene) screw (3-n-butyl indenyl) zirconium dichloride (1), [2'] - What permuted zirconiums in these compounds, such as dimethyl silylene (2, 1'-isopropylidene)-screw (3-trimethylsilylmethyl indenyl) zirconium dichloride, by titanium or the hafnium can be mentioned.

[0028] Next, the compound which reacts with the transition-metals compound of a ** (A) component as (B-1) of a co-catalyst (B) component, or its derivative, and can form the complex of ionicity Tetra-phenyl triethyl borate ammonium, tetra-phenyl boric acid tree n-butyl ammonium, tetra-phenyl boric acid trimethylammonium, tetra-phenyl boric acid tetraethylammonium, tetra-phenyl methyl borate (tree n-butyl) ammonium, Tetra-phenyl boric acid benzyl (tree n-butyl) ammonium etc. can be mentioned. One sort of (B-1) may be used, and may be used combining two or more sorts.

[0029] Moreover, as for the aluminosilane as (B-2), methyl aluminosilane, ethyl aluminosilane, isobutyl aluminosilane, etc. are mentioned. One sort of these aluminosilane may be used and it may be used combining two or more sorts.

[0030] In addition to the above-mentioned (A) component and the (B) component, as said catalyst for polymerizations, an organoaluminum compound can be used as a (C) component. Here, as an organoaluminum compound of the (C) component, trimethylaluminum, triethylaluminum, triisopropyl aluminum, triisobutylaluminum, dimethyl aluminum chloride, a diethylaluminum chloride, methyl aluminum dichloride, ethyl aluminum dichloride, a dimethyl aluminum fluoride, a diisobutyl aluminum hydride, a diethyl aluminum hydride, ethylaluminum sesquichloride, etc. are mentioned. One sort of these organoaluminum compounds may be used and they may be used combining two or more sorts.

[0031] Here, on the occasion of the polymerization of a propylene, even if there are few catalyst components, a kind can also be supported and used for suitable support. Although especially a

polymerization method is not restricted but which approaches, such as a slurry polymerization method, a vapor-phase-polymerization method, a bulk-polymerization method, a solution polymerization method, and a suspension-polymerization method, may be used, a bulk-polymerization method and a solution polymerization method are desirable.

[0032] For polymerization temperature, a raw material monomer / the above-mentioned (A) component (mole ratio) is desirable, and the operating rate of a catalyst to -100-250 degrees C and a reaction raw material is usually 1-108, and 100-105. Becoming is more desirable. Furthermore, polymerization time amount is 5 minutes - 10 hours, and reaction pressure is usually ordinary pressure -20MPa (gauge).

[0033] Next, other components of the resin constituent as a wrap film of this invention are explained. As an olefin system polymer [II] which are other components, a polypropylene and propylene-alpha olefin copolymer, a propylene-ethylene-diene copolymer, high pressure process low density polyethylene, high density polyethylene, and a consistency are 850 - 940 kg/m³. An ethylene-alpha olefin copolymer, an ethylene-vinylacetate copolymer, a hydrogenation styrene system elastomer, etc. are mentioned. A polypropylene and propylene-alpha olefin copolymer and a consistency are 850 - 940 kg/m³ especially. An ethylene-alpha olefin copolymer is desirable and two or more these olefin system polymers can also be used. Especially as the olefin system aggregate [II], a propylene system polymer is desirable.

[0034] The resin constituent which forms the wrap film of this invention consists of said propylene polymer [I] 1 - 99 mass %, and olefin system polymer [II] 99 - 1 mass %. Preferably, it consists of said propylene polymer [I] 25 - 96 mass %, and olefin system polymer [II] 75 - 4 mass %. They are said propylene polymer [I] 40 - 92 mass %, olefin system polymer [II] 60 - 8 mass %, and the thing that consists of said propylene polymer [I] 50 - 90 mass %, and olefin system polymer [II] 50 - 10 mass % most preferably still more preferably.

[0035] Here, when there are few presentation ratios of said propylene polymer [I], manufacture of the film which the engine performance as wrap films, such as flexibility, transparency, deformation stability, and wrapping nature, fell, and was inferior to film production stability when many [conversely], and was stabilized with sufficient productivity may become difficult. therefore, the propylene polymer which uses the rate of a compounding ratio [I], for example, a meso pentad molar fraction, [eta] etc. -- in consideration of the class of olefin system polymer [II], molecular weight, melt viscosity, etc., it can select suitably mainly based on wrapping nature.

[0036] In addition, in manufacture of the wrap film of this invention, various well-known additives can be blended with a resin constituent by request. As various additives used by request, an anti-oxidant, a neutralizer, a slipping agent, an anti blocking agent, an antifogger, lubricant, a nucleating agent, or an antistatic agent is mentioned. One sort of these additives may be used and they may be used combining two or more sorts. For example, as an antioxidant, the Lynn system antioxidant, a phenolic antioxidant, a sulfur system antioxidant, etc. are mentioned.

[0037] As an example of the Lynn system antioxidant, tris nonylphenyl phosphite, Tris (2, 4-G t-butylphenyl) phosphite, distearyl pentaerythritoldiphosphite, Bis(2,4-di-tert-butylphenyl) pentaerythritol phosphite, Screw (2, 6-G t-butyl-4-methylphenyl) pentaerythritol phosphite, 2,2-methylene bis(4,6-di-t-butylphenyl)octyl phosphite, Tetrakis (2, 4-G t-butylphenyl) -4, 4-biphenylene diphosphonate, The ADEKA stub 1178 (Asahi electrification (**)), Sumi Reiser TNP (Sumitomo Chemical (**)), JP-135 (Johoku chemistry (**)), the ADEKA stub 2112 (Asahi electrification (**)), JPP-2000 (Johoku chemistry (**)), Weston618 (GE (**)), ADEKA stub PEP-24G (Asahi electrification (**)), ADEKA stub PEP-36 (Asahi electrification (**)), ADEKA stub HP-10 (Asahi electrification (**)), SandstabP-EPQ (sand (**)), the FOSU fight 168 (tiba SUPESHARUTI KEMIKARUZU (**)), etc. are mentioned.

[0038] As an example of a phenolic antioxidant, 2,6-di-tert-butyl-4-methylphenol, n-octadecyl-3-(3', 5'- G t-butyl -4'-hydroxyphenyl) propionate, Tetrakis [methylene-3-(3, 5-G t-butyl-4-hydroxyphenyl) propionate] methane, Tris (3, 5-G t-butyl-4-hydroxybenzyl) isocyanurate, 4 and 4'-butylidenebis - (3-methyl-6-t-butylphenol), A triethylene glycol-screw [3-(3-t-butyl-4-hydroxy-5-methylphenyl) propionate], 3, 9-screw [2-[3-(3-t-butyl-4-hydroxy-5-methylphenyl) propionyloxy]-1 and 1-dimethyl ethyl]-tetraoxaspiro [2, 4, 8, and 10-] [5, 5] undecane, SUMIRAIZA BHT (Sumitomo Chemical (**)), reed NOx BHT (Yoshitomi Pharmaceutical

Industries (**), ANTEJI BHT (Kawaguchi chemistry (**)), IRUGA NOx 1076 (tiba SUPESCHARUTI KEMIKARUZU (**)), IRUGA NOx 1010 (tiba SUPESCHARUTI KEMIKARUZU (**)), ADEKA stub AO-60 (Asahi electrification (**)), Sumi Reiser BP-101 (Sumitomo Chemical (**)), TOMINOKKUSU TT (Yoshitomi Pharmaceutical Industries (**)) and TTHP (Toray Industries (**)), IRUGA NOx 3114 (tiba SUPESCHARUTI KEMIKARUZU (**)), ADEKA stub AO-20 (Asahi electrification (**)), ADEKA stub AO-40 (Asahi electrification (**)), SUMIRAIZA BBM-S (Sumitomo Chemical (**)), reed NOx BB (Yoshitomi Pharmaceutical Industries (**)) ANTEJI W-300 (Kawaguchi chemistry (**)), IRUGA NOx 245 (tiba SUPESCHARUTI KEMIKARUZU (**)), ADEKA stub AO-70 (Asahi electrification (**)), Tomi Knox 917 (Yoshitomi Pharmaceutical Industries (**)), ADEKA stub AO-80 (Asahi electrification (**)), Sumi Reiser GA-80 (Sumitomo Chemical (**)), etc. are mentioned.

[0039] As an example of a sulfur system anti-oxidant, dilauryl -3, 3'-thiodipropionate, Dimyristyl -3, 3'-thiodipropionate, distearyl -3, 3'-thiodipropionate, Pentaerythritol tetrakis (3-laurylthio propionate), SUMIRAIZA TPL (Sumitomo Chemical (**)), reed NOx DLTP (Yoshitomi Pharmaceutical Industries (**)) Anti OKKUSU L (Nippon Oil & Fats (**)), Sumi Reiser TPM (Sumitomo Chemical (**)) Reed NOx DMTP (Yoshitomi Pharmaceutical Industries (**)), anti OKKUSU M (Nippon Oil & Fats (**)) SUMIRAIZA TPS (Sumitomo Chemical (**)), reed NOx DSTP (Yoshitomi Pharmaceutical Industries (**)) Anti OKKUSU S (Nippon Oil & Fats (**)), ADEKA stub AO-412S (Asahi electrification (**)), SEENOX 412S (SHIPRO formation (**)), Sumi Reiser TDP (Sumitomo Chemical (**)), etc. are mentioned.

[0040] the inside of these -- IRUGA NOx 1010: matter name: pentaerythrityl-tetrakis [3-(3, 5-G t-butyl-4-hydroxyphenyl) propionate] IRUGAFOSU 168: Matter name : A tris (2, 4-G t-buthylphenyl) FOSU fight, IRUGA NOx 1076: Matter name : Octadecyl-3-(3, 5-G t-butyl-4-hydroxyphenyl) propionate, IRUGA NOx 1330: Matter name: 1, 3, 5-trimethyl -2, 4, 6-tris (3, 5-G t-butyl-4-hydroxybenzyl) benzene, IRUGA NOx 3114: Matter name: Tris (3, 5-G t-butyl-4-hydroxybenzyl) isocyanurate, P-EPQ: matter name: tetrakis (2, 4-G t-buthylphenyl) 4, and especially a 4'-biphenylene-G FOSU fight are desirable.

[0041] What is necessary is just to carry out 0.001-1 mass section extent addition of the antioxidant to said propylene polymer resin constituent 100 mass section, when using an antioxidant in this invention. Yellowing etc. can be prevented by this and it is desirable.

[0042] If the concrete example of an activity of the above-mentioned antioxidant is given, it will be example 1: IRUGA NOx 1010. 1,000 ppm PEP-Q The example 2 of 1,000 ppm: IRUGA NOx 1076 1,200 ppm PEP-Q 600 ppm IRUGAFOSU 168 The example 3 of 800 ppm: IRUGA NOx 1010 400-1,000 ppm IRUGAFOSU 168 700-1,500 etc. ppm etc. is mentioned.

[0043] Moreover, as a neutralizer, it is calcium stearate, zinc stearate, magnesium stearate, and hydrotalcite (DHT-4A): empirical formula: $Mg_4.5Al_{13}CO_3(OH)_{13} \cdot 3H_2O$, and $Li_2Al_{12}CO_3(OH)_{12} \cdot 3H_2O$, etc. [the "MIZUKA rack H-1" of the Mizusawa chemistry (**)] are desirable.

[0044] especially as an anti blocking agent, the "SAIRISHIA": composition silica system of Fuji SHIRISHIA (**), the "Ms. KASHIRU": composition silica system of Mizusawa Industrial Chemicals (**), etc. are desirable.

[0045] Especially as a slipping agent, an erucic-acid amide, oleic amide, octadecanamide, a behenic acid amide, ethylene bis-octadecanamide, ethylene bis-oleic amide, stearyl erucamide, and oleyl palmitamide are desirable.

[0046] as an antifogger -- (**) -- glycerol monochrome (JI, Tori) olate and (**) glycerol monochrome (JI) Glycerine fatty acid ester compounds, such as Tori stearate, (**) glycerol monochrome (**) palmitate, and (**) glycerol monochrome (**) laurate, Sorbitan laurate, sorbitan palmitate, a sorbitan (Tori) SUCHIA rate, Sorbitan fatty acid ester compounds, such as sorbitan (Tori) olate, The polyoxyethylene alkyl (phenyl) ether, polyoxyethylene sorbitan mono-olate, Ethyleneoxide addition products, such as polyoxyethylene glycerol monostearate, Propylene glycol fatty acid ester, such as propylene glycol mono-laurate, propylene glycol monopalmitate, propylene glycol monostearate, and propylene glycol mono-olate, etc. can be mentioned. It can have two or more these antifoggers, and they can also be. By the activity of an antifogger, the cloudiness by the steam from a RAPPINGU object can be prevented, and display commodity

value by maintenance of fluoroscopy nature can be made high.

[0047] When using a nucleating agent, it is usually 10 ppm or more to the resin constituent which consists of a propylene polymer [I] and an olefin system polymer, and the range of the addition of a nucleating agent is 10–10,000 ppm preferably, and the range of it is 10–5,000 ppm more preferably, and it is 10–2,500 ppm still more preferably.

[0048] The resin constituent which forms the wrap film of this invention can be manufactured by the approach of pelletizing the various additives added according to said propylene polymer [I], specific olefin system polymer [II], and specific need with melting kneading machines, such as the specified quantity in addition the usual approach, for example, an extruding press machine, and a Banbury mixer.

[0049] Thus, as an approach of forming the wrap film of this invention using the obtained constituent pellet, the T dies casting fabricating method, an inflation-molding method, the calender fabricating method, etc. are employable, for example. In the shaping approach of a film, resin is heated, extruded and cooled at about 190–270 degrees C, and shaping resin temperature is produced at them. In addition, as the cooling approach, air cooling and which water-cooled are also employable.

[0050] As for the wrap film of this invention, a non-oriented film also fully has a function as a wrap film. However, biaxial stretching can also be carried out by the well-known approach as occasion demands. The cut nature of a wrap film can be raised by this drawing. 5–40 micrometers, the range of the thickness of the wrap film of this invention is 10–20 micrometers, and it is usually preferably determined suitably in consideration of the application of a wrap film, an activity gestalt, etc.

[0051] Although the wrap film of this invention is based on the monolayer film which consists of said resin constituent, it can also be used as the multilayer film which has at least the layer which consists of this resin constituent further. As a multilayer film, you may be the case of the multilayer film in within the limits of the requirements for the specific propylene polymer [I] used by this invention, and the multilayer film which consists of a resin constituent with which additive formulas differ is [requirements and a presentation ratio may be the same and] sufficient.

[0052] Moreover, it can also consider as the multilayer film which consists of a resin constituent layer which forms the wrap film of this invention, and one or more layers suitably chosen from other olefin system resin. In this case, 1 to 99%, it is 20 – 80% of range, and it can employ the description of this invention efficiently that this layer comes to a piece outer layer at least, and the ratio of the layer which consists of a resin constituent containing a specific propylene polymer [I] has it. [preferably desirable] In addition, as other olefin system resin of a multilayer film, it can choose from the olefin system resin explained in full detail by the olefin system resin [II] in said resin constituent suitably, and can use.

[0053] Thus, it does not have blowdown of the harmful matter at the time of abolition incineration, and is kind also to earth environment while the wrap film of obtained this invention has safety, flexibility, wrapping nature (adhesiveness), transparency, deformation recoverability, anti-stick property, good cut nature, etc. Therefore, the wrap film of this invention can be suitably used as business use and a home wrap film as the resin foaming tray package of food, refrigeration, refrigeration, and an object for preservation.

[0054]

[Example] Although this invention is explained still more concretely below based on an example, this invention is not restricted at all by these examples.

[0055] manufacture (**) of a propylene polymer [I] -- 3.0g (6.97mmol) of the lithium salt of - (2 (1, 2'-dimethyl silylene), 1'-dimethyl silylene) screw (indene) is dissolved in the synthetic SHURENKA bottle of synthetic (1, 2'-dimethyl silylene) (2, 1'-dimethyl silylene) - screw (3-trimethylsilylmethyl indenyl) zirconium dichloride of a complex at THF50mL, and it cools at -78 degrees C. Iodine methyl trimethyl silane 2.1mL (14.2mmol) is dropped slowly, and it stirs at a room temperature for 12 hours. A solvent is distilled off, ether 50mL is added and a saturated-ammonium-chloride solution washes. After liquid separation, the organic phase was dried, the solvent was removed and 3.04g (5.88mmol) was obtained for - (2 (1, 2'-dimethyl silylene), 1'-dimethyl silylene) screw (3-trimethylsilylmethyl indene). (84% of yield)

[0056] Next, 3.04g (5.88mmol) and ether 50mL are put for - (2 (1, 2'-dimethyl silylene), 1'-dimethyl silylene) screw (3-trimethylsilylmethyl indene) obtained above by the SHURENKU bottle into the bottom of a nitrogen air current. - Stir at a room temperature for 12 hours after cooling at 78 degrees C and adding n-BuLi (hexane solution 1.54M) 7.6 mLs (11.7mmol). 3.06g (5.07mmol) was obtained by making lithium salt into an ether adduct by distilling off a solvent and washing the obtained solid-state by hexane 40mL. (73% of yield) Result of measurement by ¹H-NMR (90MHz and THF-d₈): delta It was 0.04 (s, 18H, trimethylsilyl), 0.48 (s, 12H, dimethyl silylene), 1.10 (t, 6H, methyl), 2.59 (s, 4H, methylene), 3.38 (q, 4H, methylene), and 6.2-7.7 (m, 8H, Ar-H).

[0057] The lithium salt obtained above under the nitrogen air current is dissolved in toluene 50mL. - The toluene (20mL) suspension of 1.2g of zirconium tetrachlorides which cooled at 78 degrees C and were beforehand cooled at -78 degrees C here (5.1mmol) is dropped. It stirs at a room temperature after dropping for 6 hours. The solvent of the reaction solution is distilled off. 0.9g (1.33mmol) was obtained for - (2 (1, 2'-dimethyl silylene), 1'-dimethyl silylene) screw (3-trimethylsilylmethyl indenyl) zirconium dichloride by recrystallizing the obtained residue from dichloromethane. (26% of yield) Result of measurement by ¹H-NMR (90MHz and CDCl₃): delta It was 0.0 (s, 18H, trimethylsilyl), 1.02, 1.12 (s, 12H, dimethyl silylene) and 2.51 (dd, 4H, methylene), and 7.1-7.6 (m, 8H, Ar-H).

[0058] (b) a polymerization agitator and the autoclave made from stainless steel of 10l. of content volume of a propylene -- 4l. of n-heptanes, and triisobutylaluminum -- the sequential charge of methyl aluminoxane (made in Albemarle) 2 millimol and the - (2 (1, 2'-dimethyl silylene), 1'-dimethyl silylene) screw (3-trimethylsilylmethyl indenyl) zirconium dichloride 2 micromole obtained with the above was carried out further 2 millimol. Subsequently, introducing hydrogen to 0.06MPa(s) (gauge) and raising temperature to 60 degrees C, propylene gas was introduced until it was set to 0.8MPa(s) (gauge) with total pressure, and the polymerization was started. During the polymerization, propylene gas was continuously supplied with the pressure governor so that total pressure might be set to 0.8MPa(s) (gauge). At the temperature of 60 degrees C, after performing a polymerization for 30 minutes, the propylene polymer [I] was obtained by drying contents under ejection and reduced pressure.

[0059] (c) It measured by the approach indicated in the measurement aforementioned description text of the assessment **. pentad molar fraction of a propylene polymer.

** . Limiting viscosity [eta] Measurement In 135 degrees C, it measured using the VMR-053 mold automatic viscometer of RIGOSHA among the tetralin solvent.

** . -- the amount of components eluted below 25 degrees C in temperature programmed chromatography -- the amount W25 (mass %) of the component eluted without adsorbing a bulking agent in the column temperature of 25 degrees C of TREF [in / as follows / an elution diagram] was calculated.

(a) It introduces into the TREF column which adjusted the operation information sample solution in temperature of 135 degrees C, subsequently lower the temperature to 0 degree C gradually at 5 degrees C/hour in temperature fall rate, hold for 30 minutes, and make a sample stick to a bulking agent. Then, temperature up of the column was carried out to 135 degrees C with the programming rate of 40 degrees C/hour, and the elution diagram was obtained.

[0060]

(b) Equipment configuration TREF column : GL Saiensu-Sha make Silica gel column (4.6phi x 150mm)

Flow cell : GL Saiensu-Sha make 1mm of optical path lengths KBr cel Liquid-sending pump : SENSUU science company make SSC-3100 pump Bulb oven : GL Saiensu-Sha make MODEL554 oven (high temperature form)

TREF oven: GL Saiensu-Sha make Two-trains thermoregulator : Physical science industrial company make REX-C100 thermoregulator Detector : Infrared detector for liquid chromatography Product made from FOXBORO MIRAN 1A CVF Method bulb of ten : Made in Barco Electric bulb : Made in Barco 500 microliter loop formation [0061]

(c) Measuring condition Solvent : o-dichlorobenzene Sample concentration : 7.5g/l. Injection rate : 500 microliter Pump flow rate : A part for 2.0ml/ Detection wave number : 3.41

vat stick the lug of a film to it. Then, the film was extended one by one from the central edge, and the coat of opening was tried. The case where O and all failed in the case of a success O and 30mm by the case where all were successful 50mm and wrapping is able to be completed 30mm was judged to be x.

[0070] ** Opening of an angle vat was wrapped like the anti-stick property wrapping nature 1, and the center section was continuously poked with the finger slowly. O and the case of being other were judged for the case where it is not torn in the bottom of an angle vat, as x.

[0071] ** One side put the die which is 45mm on the center section of the same angle vat as the deformation (elasticity) recoverability wrapping nature 1, and wrapped it by the same actuation as the wrapping nature 1. Subsequently, the center section of the film was slowly poked with the finger, when hitting the die put on the bottom, the finger was lifted from the film and the condition of 3 minutes after was observed. ** and the case where it was torn were judged for the case where O and saccate marks remain the case where it restores as before, as x.

[0072] The wrap-film [trade name made from the polyvinylidene chloride of example [of a comparison] 1 marketing: Saran Wrap R () by Asahi Chemical Co., Ltd. was similarly estimated as the example 1.) A result is shown in the 1st table.

[0073]

[A table 1]

第1表

組成比 (質量%)		実施例1	実施例2	実施例3	実施例4	比較例1
プロピレン重合体 (I)		70	70	90	50	—
オレフィン系 重合体 (II)	F-704NP	30	—	10	50	—
	F-734NP	—	30	—	—	—
ラ ッ プ フ ィ ル ム の 評 価	ヘーズ (%)	0.3	0.3	0.5	0.6	0.3
	引張弾性率 (MPa)	130	130	70	270	1250
	引張降伏強度 (MPa)	8.3	8.0	6.4	11.4	降伏点存 在せず
	ラッピング性1	◎	◎	◎	◎	◎
	ラッピング性2	◎	◎	◎	○	×
	耐突き刺し性	◎	◎	◎	◎	×
	変形回復性	◎	◎	◎	◎	×

[0074]

[Effect of the Invention] a possibility that toxic gases, such as hydrogen chloride gas of the chlorine origin and dioxin, etc. may generate the wrap film of this invention at the time of abolition incineration -- there is nothing -- the earth -- it is eco-friendlily safe and has transparency, anti-stick property, and the property that deformation recoverability is used for the current large quantity, and was further excellent in the wrapping film made of polyvinylidene chloride resin, an EQC or anti-stick property, deformation stability, etc.

[Translation done.]

* NOTICES *

JPO and NCIP1 are not responsible for any damages caused by the use of this translation.

- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.**** shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

TECHNICAL FIELD

[Field of the Invention] This invention relates to the wrap film with which can be satisfied of demand characteristics as a wrap film, such as wrapping nature, transparency, and deformation stability, while it is environment-friendly and excellent in safety about business use or a home wrap film excluding especially chlorine.

[Translation done.]

* NOTICES *

JPO and NCIP are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

PRIOR ART

[Description of the Prior Art] Conventionally, cooked food, such as vegetables and fruits, prime meat, fishes or these processed foods, and a daily dish, etc. is put on the tray made of lightweight foaming resin, is wrapped with a film, and is sold in the department store, the supermarket, the grocery store, etc. Moreover, also at the home, putting in and wrapping a container etc. in the cases at the time of the preservation in refrigeration of food, refrigeration, etc. and heating with a microwave oven etc. is performed.

[0003] As this wrapping film, properties at the time of pushing with fluoroscopy nature, a wrapping result appearance, wrapping effectiveness, anti-stick property, and a finger, such as deformation stability, are searched for. Generally as a film with which can be satisfied of these wrapping properties, polyvinyl chloride system resin, such as a polyvinyl chloride (PVC) and a polyvinylidene chloride (PVDC), is used so much.

[0004] However, since polyvinyl chloride system resin, such as a polyvinyl chloride (PVC) and a polyvinylidene chloride (PVDC), contains chlorine in the molecular structure, generating harmful hydrogen chloride gas, dioxin, etc. by incineration processing after being discarded after the activity has been regarded as questionable from an environmental side. Furthermore, elution of the plasticizer blended so much because of elasticity-izing as a wrap film is also regarded as questionable from a viewpoint of safety.

[0005] For the dissolution of these troubles, the attempt which uses a polyethylene system film and a polypropylene system film is also made, and the part is put in practical use. However, a polyethylene system film has low thermal resistance, although a low-temperature property is good, and although the thermal resistance of a polypropylene system film is high, there is a trouble that a low-temperature property is low. furthermore, a polyethylene system and a polypropylene system -- whichever it is in, there is a trouble that the adhesion to a tray etc. and the adhesion of films are inadequate.

[0006] For this reason, for example, the various proposals of the approach of blending ethylene-propylene rubber, a styrene-ethylene-butylene-styrene block copolymer, conversion polyolefine, polybutene, hydrocarbon resin, an adhesive grant assistant, etc. with propylene system resin are made. However, these compounding agents do not necessarily have enough compatibility with a polypropylene resin, and have new troubles, such as a surface dry area, lowering of transparency, lowering of film production nature, or bleeding of the low molecular weight compound which is an adhesive grant assistant.

[0007] As other wrap films, a polypropylene resin (A) 50 - 98 mass sections, and a consistency are 0.900 g/cm³ in JP,11-29967,A. The wrap film which becomes the wrap film and JP,11-29968,A which were formed from the resin constituent which consists of the following ethylene-alpha olefin copolymers (B) 2 - the 50 mass sections from the resin constituent which carries out fats-and-oils (B) 1-15 mass section content to the polypropylene resin (A) 100 mass section is indicated. However, in order to secure the adhesiveness as a wrap film, addition of low molecular weight compounds, such as polybutene and fats and oils, is not substantially different from the conventional approach at all from a required point.

[0008] In JP,2000-44742,A, it is a 80 or more-(b) isotactic characteristic. Contain the ethylene of the polypropylene component which it has, 20 to 60 mass %, and (b) 50 - 95 mass %. The

crystal component (I) and 25 - 95 mass % which are the copolymer component of ethylene and a with a carbon numbers of four or more olefin, and have insoluble crystalline polyethylene in the xylene in 25 degrees C, The film containing the elasticity polypropylene resin which becomes 25-degree-C xylene from the amorphism component (II) which is fusibility, the copolymer component which consists of 5 - 75 mass %, and 40 - 80 mass % is indicated. However, it is not that in which the assessment as a wrap film is the multilayer film which made not a monolayer film but the propylene-ethylene-butene-1 copolymer, and the ethylene-vinylacetate copolymer both outer layers, and the property as a wrap film employed the polypropylene resin efficiently substantially, and the level of transparency is not enough, either.

[0009] therefore, the wrap film which it does not attain to the level of the wrap film of polyvinyl chloride system resin although the wrap film which consists of polyolefine system resin which does not contain these chlorine can solve the problem of a resistance to environment, but still consists of polyvinyl chloride system resin -- width -- the actual condition is used widely.

[Translation done.]

*** NOTICES ***

JPO and NCIP are not responsible for any damages caused by the use of this translation.

- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.**** shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

EFFECT OF THE INVENTION

[Effect of the Invention] a possibility that toxic gases, such as hydrogen chloride gas of the chlorine origin and dioxin, etc. may generate the wrap film of this invention at the time of abolition incineration -- there is nothing -- the earth -- it is eco-friendlily safe and has transparency, anti-stick property, and the property that deformation recoverability is used for the current large quantity, and was further excellent in the wrapping film made of polyvinylidene chloride resin, an EQC or anti-stick property, deformation stability, etc.

[Translation done.]

* NOTICES *

JPO and NCIP are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] This invention does not contain chlorine but aims at offering a wrap film gentle to earth environment without fear of generating of harmful matter, such as a hydrogen chloride which originates in chlorine at the time of abolition incineration, and dioxin, while it has properties as a wrap film, such as wrapping nature, transparency, deformation stability, and anti-stick property.

[Translation done.]

* NOTICES *

JPO and NCIP are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

MEANS

[Means for Solving the Problem] In order that this invention persons may attain the above-mentioned object, as a result of repeating examination wholeheartedly, the film which comes to produce a film the constituent which consists of a specific propylene polymer and a specific olefin system polymer came to complete a header and this invention for the ability of this object to be attained. Namely, summary of this invention [1] Propylene polymer [which fills following (1) and (2)] [I] 1 - 99 mass %, (1) Meso pentad molar fraction (mmmm(s)) are 0.2-0.6. (2) Wrap film which it comes to form from the resin constituent which consists of $[rrrr/(1-mmmm)] \leq 0.1$, and olefin system polymer [II] 99 - 1 mass % with which a raceme pentad molar fraction (rrrr) and (1-mmmm) fill the following relation.

[2] The wrap film of the aforementioned [1] publication which is the propylene polymer with which a propylene polymer [I] fills following (3).

(3) Limiting viscosity measured at 135 degrees C among the tetralin [eta] It is 1-3 deciliters/g

[3]. Wrap film the above [1] which is the propylene polymer with which a propylene polymer [I] fills following (4), or given in [2].

(4) The amount of components (W25) eluted below 25 degrees C in temperature programmed chromatography is 20 to 100 mass % [4]. Wrap film given in either of aforementioned [1]- [3] by which a polymerization is carried out using the metallocene catalyst with which a propylene polymer [I] consists of a transition-metals compound which comes to form the structure of cross linkage through two bridge formation radicals, and a co-catalyst.

[5] A wrap film given in either of aforementioned [1]- [4] whose olefin system polymers [II] are propylene system polymers.

[6] Offer the multilayer wrap film which has at least one layer of layers which become either of aforementioned [1]- [5] from the resin constituent of a publication.

[0012]

[Embodiment of the Invention] The wrap film of this invention consists of a film formed from the resin constituent which consists of specific propylene polymer [I] 99 - 1 mass % and olefin system polymer [II] 1 - 99 mass %. That is, the wrap film of this invention is a wrap film which comes to produce a film the resin constituent which contains this specific propylene polymer as an indispensable component. Hereafter, the wrap film of this invention is explained in detail.

[0013] The specific propylene polymer [I] used with the wrap film of this invention fills following (1) and (2).

(1) As a propylene polymer [I] in $[rrrr/(1-mmmm)] \leq 0.1$ this invention with which (2) raceme-pentad molar fraction (rrrr) whose meso pentad molar fractions (mmmm) are 0.2-0.6, and (1-mmmm) fill the following relation Although what is necessary is just to fill said range, it is desirable that meso pentad molar fractions (mmmm) are 0.3-0.5. It is desirable that a raceme pentad molar fraction (rrrr) and (1-mmmm) are $[rrrr/(1-mmmm)] \leq 0.08$. It is more desirable that it is $[rrrr/(1-mmmm)] \leq 0.06$, and it is desirable that it is especially $[rrrr/(1-mmmm)] \leq 0.05$.

[0014] It becomes impossible that it is hard to secure the wrapping nature which is a property that the film which produced the constituent and was obtained is required as a wrap film, flexibility, transparency, deformation stability, anti-stick property, etc. when (1) meso pentad molar fraction (mmmm) of a propylene polymer [I] exceeds 0.6, and when (2) raceme-pentad

molar fraction (rrrr) and the relation of (1-mmmm) are not filled. When (1) meso pentad molar fraction (mmmm) is less than 0.2, it becomes moreover, less suitable [as a wrap film] from film production stability, trouble generating by the bleeding of an additive, strong lowering, etc.

[0015] The meso pentad molar fraction (mmmm) which specifies the propylene polymer [I] used by this invention is a meso molar fraction in the pentad unit in the polypropylene chain measured with the signal of the methyl group of ^{13}C -NMR spectrum based on the approach proposed by ray Zhang Berry (A. Zambelli) etc. by "Macromolecules, 6,925 (1973)." If this becomes large, it means that stereoregularity becomes high. It may become difficult less than by 0.2 to produce a film the meso pentad molar fraction (mmmm) of said propylene polymer by the stickiness nature of a film. Moreover, if 0.6 is exceeded, wrapping nature may become enough neither by flexibility nor adhesive lowering.

[0016] Similarly a raceme pentad molar fraction (rrrr) is a racemic molar fraction in the pentad unit in a polypropylene chain. $[\text{rrrr}/(1-\text{mmmm})]$ is an index with which it asks from the molar fraction of the above-mentioned pentad unit, and the uniformity of stereoregularity distribution of a propylene polymer is expressed. It means that transparency falls, while stereoregularity distribution will serve as mixture of high stereoregularity polypropylene (PP) and amorphous polypropylene (APP) like the conventional polypropylene manufactured using breadth and the existing catalyst system, stickiness will increase and film production nature will get worse, if this value becomes large. It becomes the cause for which $[\text{rrrr}/(1-\text{mmmm})]$ of said propylene polymer [I] exceeds 0.1, which was able to fly and to attach.

[0017] In addition, measurement of ^{13}C -NMR spectrum is performed on following equipment and following conditions according to attribution of the peak proposed by ray Zhang Berry (A. Zambelli) etc. by "Macromolecules, 8,687 (1975)."

[0018]

equipment: -- JNM-EXby JEOL Co., Ltd. 400 mold ^{13}C -NMR equipment approach: -- proton perfect decoupling method concentration: -- 220mg [/ml] solvent: -- mixed solvent temperature [of 90:10 (capacity factor)]: of 1,2,4-trichlorobenzene and heavy benzene -- 130-degree-C pulse width: -- 45-degree pulse repetition-time: -- 4-second addition: -- 10,000 times

[0019] As a specific propylene polymer [I] used by this invention, it is the limiting viscosity measured at 135 degrees C other than said requirements among (3) tetralin solvent. $[\eta]$ What is 1-3 deciliters/g is desirable. This limiting viscosity $[\eta]$ Especially when the T dies casting shaping approach is adopted with regards to the film production nature of a film and 1.0-2.5 deciliters [g] /and the inflation-molding approach are adopted, g is desirable in 1.5-3.0 deciliters /. In here $[\eta]$ When film production nature falls ing in less than 1 deciliter /and g is exceeded in 3 deciliters /, melt viscosity will be high, a fluidity will fall and film production nature will fall similarly.

[0020] Furthermore, it is desirable that the amount of components (W25) eluted below 25 degrees C in (4) temperature programmed chromatography besides the requirements of the above (1), (2), and (3) is 20 - 100 mass %, and further 50 - 100 mass % are more desirable. W25 is the amount (mass %) of the component eluted without adsorbing a bulking agent in the column temperature of 25 degrees C of TREF in the elution diagram for which measured with the temperature programmed chromatography of the operation information described in an example, an equipment configuration, and a Measuring condition, and it asked. W25 is an index showing whether a propylene polymer is elasticity. If this value becomes large, a component with a low elastic modulus will increase, and/or it means that the unevenness of stereoregularity distribution has spread. In this invention, at less than 20%, the flexibility of W25 etc. is lost and it is not desirable.

[0021] As for the specific propylene polymer [I] used by this invention, what has the further following requirements is desirable.

** Four or less have the desirable molecular weight distribution (M_w/M_n) measured by the gel permeation (GPC) method, and 3.5 or less have more desirable M_w/M_n . If molecular weight distribution (M_w/M_n) exceed 4, film production nature may fall. in addition, the gel permeation chromatograph (GPC) which describes the above-mentioned molecular weight distribution (M_w/M_n) in an example -- it asks by law.

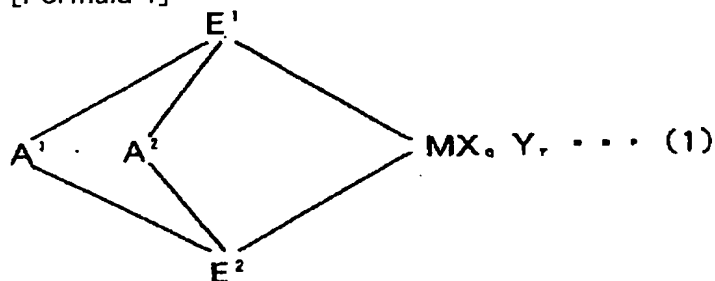
[0022] ** It is desirable that amount of fusion endoergic ΔH by DSC measurement is 30 or less J/g. This ΔH has a high elastic modulus, when this value becomes large with the index showing whether it is elasticity or there is nothing, and it means that elasticity nature is falling. ** Although there may be the melting point (T_m) or there may be, about that there is nothing from the point of elasticity nature or a low value, especially T_m , it is desirable that it is 100 degrees C or less. [no] In addition, ΔH and T_m are calculated by DSC measurement described in an example.

[0023] Below 2 mass % copolymerization of the comonomers other than a propylene may be carried out that what is necessary is just what satisfies (1) which is said specific requirements, and (2) as a propylene polymer [I] used by this invention. You may be the copolymer obtained by mentioning ethylene, 1-butene, 1-pentene, 4-methyl-1-pentene, 1-hexene, 1-octene, 1-decene, 1-dodecen, 1-tetra-decene, 1-hexa decene, 1-octadecene, 1-ray KOSEN, etc., and copolymerizing as a comonomer using these kinds or two sorts or more.

[0024] As the manufacture approach of the propylene polymer [I] used by this invention, the requirements of the above (1) and (2) are satisfied and that does not have especially definition. For example, a propylene can be preferably manufactured using the metallocene catalyst obtained combining the transition-metals compound (A) and co-catalyst (B) which form the structure of cross linkage through two bridge formation radicals by the polymerization or the well-known approach (WO99/67303 reference) of copolymerizing. Concretely, if it illustrates, it will be a general formula (1).

[0025]

[Formula 1]



[0026] M shows the metallic element of the 3-10th groups of the periodic table, or a lanthanoids sequence among [type. E1 And E2 It is the ligand chosen from a substituent cyclopentadienyl group, an indenyl group, a permutation indenyl group, a hetero cyclopentadienyl group, a permutation hetero cyclopentadienyl group, the amide group, the phosphide radical, the hydrocarbon group, and the silicon content radical, respectively. A1 And A2 when it minds and the structure of cross linkage is formed, and you may differ even if they are mutually the same, and X shows the ligand of sigma bond nature and there is two or more X, even when two or more X is the same -- differing -- **** -- other X, E1, and E2 Or the bridge may be constructed with Y. When Y shows a Lewis base and has two or more Y, even if two or more Y is the same, it may differ. other Y, E1, and E2 or X -- constructing a bridge -- **** -- A1 And A2 It is the bridge formation radical of the bivalence which combines two ligands. The hydrocarbon group of carbon numbers 1-20, the halogen content hydrocarbon group of carbon numbers 1-20, A silicon content radical, a germanium content radical, a tin content radical, -O-, -CO-, -S-, -SO2-, -Se-, -NR1-, --1-, -P(O) R1-, -BR1- or -AlR1- is shown and it is R1. The hydrocarbon group of a hydrogen atom, a halogen atom, and carbon numbers 1-20 or the halogen content hydrocarbon group of carbon numbers 1-20 is shown, and even if they are mutually the same, they may differ. q shows [(valence of M) -2] for the integer of 1-5, and r shows the integer of 0-3.] The approach of carrying out copolymerization of homopolymerization of a propylene, or a propylene and a small amount of alpha olefins of other is mentioned under existence of the catalyst for polymerizations containing the co-catalyst component chosen from the compound (B-1) and aluminoxane (B-2) which come out, react with the transition-metals compound (A) expressed, the transition-metals compound of a ** (A) component as a co-catalyst (B), or its derivative,

and can form the complex of ionicity.

[0027] As an example of a transition-metals compound expressed with a general formula (1) (2 (1, 2'-dimethyl silylene)) [1'] - Dimethyl silylene screw (3-n-butyl indenyl) zirconium dichloride, screw (2 (1, 2'-dimethyl silylene), 1'-dimethyl silylene) (3-trimethylsilylmethyl indenyl) zirconium dichloride (1), [2'] - Dimethyl silylene (2, 1'-dimethyl silylene) screw (3-phenyl indenyl) zirconium dichloride, screw (2 (1, 2'-dimethyl silylene), 1'-dimethyl silylene) (4, 5-benzo indenyl) zirconium dichloride (1), [2'] - Dimethyl silylene (2, 1'-dimethyl silylene) Screw (4-isopropyl indenyl) zirconium dichloride, screw (2 (1, 2'-dimethyl silylene), 1'-dimethyl silylene) (5, 6-dimethyl indenyl) zirconium dichloride (1), [2'] - Dimethyl silylene (2, 1'-dimethyl silylene) Screw (4, 7-di-i-propyl indenyl) zirconium dichloride, screw (2 (1, 2'-dimethyl silylene), 1'-dimethyl silylene) (4-phenyl indenyl) zirconium dichloride (1), [2'] - Dimethyl silylene (2, 1'-dimethyl silylene) Screw (3-methyl-4-i-propyl indenyl) zirconium dichloride, screw (2 (1, 2'-dimethyl silylene), 1'-dimethyl silylene) (5, 6-benzo indenyl) zirconium dichloride (1), [2'] - Dimethyl silylene (2, 1'-isopropylidene)-screw (indenyl) zirconium dichloride, - (2 (1, 2'-dimethyl silylene), 1'-isopropylidene) screw (3-methyl indenyl) zirconium dichloride (1), [2'] - Dimethyl silylene (2 and 1'-isopropylidene)-screw (3-i-propyl indenyl) zirconium dichloride, - (2 (1, 2'-dimethyl silylene), 1'-isopropylidene) screw (3-n-butyl indenyl) zirconium dichloride (1), [2'] - What permuted zirconiums in these compounds, such as dimethyl silylene (2, 1'-isopropylidene)-screw (3-trimethylsilylmethyl indenyl) zirconium dichloride, by titanium or the hafnium can be mentioned.

[0028] Next, the compound which reacts with the transition-metals compound of a ** (A) component as (B-1) of a co-catalyst (B) component, or its derivative, and can form the complex of ionicity Tetra-phenyl triethyl borate ammonium, tetra-phenyl boric acid tree n-butyl ammonium, tetra-phenyl boric acid trimethylammonium, tetra-phenyl boric acid tetraethylammonium, tetra-phenyl methyl borate (tree n-butyl) ammonium, Tetra-phenyl boric acid benzyl (tree n-butyl) ammonium etc. can be mentioned. One sort of (B-1) may be used, and may be used combining two or more sorts.

[0029] Moreover, as for the aluminosilane as (B-2), methyl aluminosilane, ethyl aluminosilane, isobutyl aluminosilane, etc. are mentioned. One sort of these aluminosilane may be used and it may be used combining two or more sorts.

[0030] In addition to the above-mentioned (A) component and the (B) component, as said catalyst for polymerizations, an organoaluminum compound can be used as a (C) component. Here, as an organoaluminum compound of the (C) component, trimethylaluminum, triethylaluminum, triisopropyl aluminum, triisobutylaluminum, dimethyl aluminum chloride, a diethylaluminum chloride, methyl aluminum dichloride, ethyl aluminum dichloride, a dimethyl aluminum fluoride, a diisobutyl aluminum hydride, a diethyl aluminum hydride, ethylaluminum sesquichloride, etc. are mentioned. One sort of these organoaluminum compounds may be used and they may be used combining two or more sorts.

[0031] Here, on the occasion of the polymerization of a propylene, even if there are few catalyst components, a kind can also be supported and used for suitable support. Although especially a polymerization method is not restricted but which approaches, such as a slurry polymerization method, a vapor-phase-polymerization method, a bulk-polymerization method, a solution polymerization method, and a suspension-polymerization method, may be used, a bulk-polymerization method and a solution polymerization method are desirable.

[0032] For polymerization temperature, a raw material monomer / the above-mentioned (A) component (mole ratio) is desirable, and the operating rate of a catalyst to -100-250 degrees C and a reaction raw material is usually 1-108, and 100-105. Becoming is more desirable. Furthermore, polymerization time amount is 5 minutes - 10 hours, and reaction pressure is usually ordinary pressure -20MPa (gauge).

[0033] Next, other components of the resin constituent as a wrap film of this invention are explained. As an olefin system polymer [II] which are other components, a polypropylene and propylene-alpha olefin copolymer, a propylene-ethylene-diene copolymer, high pressure process low density polyethylene, high density polyethylene, and a consistency are 850 - 940 kg/m³. An ethylene-alpha olefin copolymer, an ethylene-vinylacetate copolymer, a hydrogenation styrene

system elastomer, etc. are mentioned. A polypropylene and propylene- α olefin copolymer and a consistency are 850 - 940 kg/m³ especially. An ethylene- α olefin copolymer is desirable and two or more these olefin system polymers can also be used. Especially as the olefin system aggregate [II], a propylene system polymer is desirable.

[0034] The resin constituent which forms the wrap film of this invention consists of said propylene polymer [I] 1 - 99 mass %, and olefin system polymer [II] 99 - 1 mass %. Preferably, it consists of said propylene polymer [I] 25 - 96 mass %, and olefin system polymer [II] 75 - 4 mass %. They are said propylene polymer [I] 40 - 92 mass %, olefin system polymer [II] 60 - 8 mass %, and the thing that consists of said propylene polymer [I] 50 - 90 mass %, and olefin system polymer [II] 50 - 10 mass % most preferably still more preferably.

[0035] Here, when there are few presentation ratios of said propylene polymer [I], manufacture of the film which the engine performance as wrap films, such as flexibility, transparency, deformation stability, and wrapping nature, fell, and was inferior to film production stability when many [conversely], and was stabilized with sufficient productivity may become difficult.

therefore, the propylene polymer which uses the rate of a compounding ratio [I], for example, a meso pentad molar fraction, [eta] etc. -- in consideration of the class of olefin system polymer [II], molecular weight, melt viscosity, etc., it can select suitably mainly based on wrapping nature.

[0036] In addition, in manufacture of the wrap film of this invention, various well-known additives can be blended with a resin constituent by request. As various additives used by request, an anti-oxidant, a neutralizer, a slipping agent, an anti blocking agent, an antifogger, lubricant, a nucleating agent, or an antistatic agent is mentioned. One sort of these additives may be used and they may be used combining two or more sorts. For example, as an antioxidant, the Lynn system antioxidant, a phenolic antioxidant, a sulfur system antioxidant, etc. are mentioned.

[0037] As an example of the Lynn system antioxidant, tris nonylphenyl phosphite, Tris (2, 4-G t-buthylphenyl) phosphite, distearyl pentaerythritoldiphosphite, Bis(2,4-di-tert-butylphenyl) pentaerythritol phosphite, Screw (2, 6-G t-butyl-4-methylphenyl) pentaerythritol phosphite, 2,2-methylene bis(4,6-di-t-butylphenyl)octyl phosphite, Tetrakis (2, 4-G t-buthylphenyl) -4, 4-biphenylene diphosphonate, The ADEKA stub 1178 (Asahi electrification (**)), Sumi Reiser TNP (Sumitomo Chemical (**)), JP-135 (Johoku chemistry (**)), the ADEKA stub 2112 (Asahi electrification (**)), JPP-2000 (Johoku chemistry (**)), Weston618 (GE (**)), ADEKA stub PEP-24G (Asahi electrification (**)), ADEKA stub PEP-36 (Asahi electrification (**)), ADEKA stub HP-10 (Asahi electrification (**)), SandstabP-EPQ (sand (**)), the FOSU fight 168 (tiba SUPESCHARUTI KEMIKARUZU (**)), etc. are mentioned.

[0038] As an example of a phenolic antioxidant, 2,6-di-tert-butyl-4-methylphenol, n-octadecyl-3-(3', 5' - G t-butyl -4'-hydroxyphenyl) propionate, Tetrakis [methylene-3-(3, 5-G t-butyl-4-hydroxyphenyl) propionate] methane, Tris (3, 5-G t-butyl-4-hydroxybenzyl) isocyanurate, 4 and 4'-butylidenebis - (3-methyl-6-t-butylphenol), A triethylene glycol-screw [3-(3-t-butyl-4-hydroxy-5-methylphenyl) propionate], 3, 9-screw [2-[3-(3-t-butyl-4-hydroxy-5-methylphenyl) propionyloxy]-1 and 1-dimethyl ethyl]-tetraoxaspiro [2, 4, 8, and 10-] [5, 5] undecane, SUMIRAIZA BHT (Sumitomo Chemical (**)), reed NOx BHT (Yoshitomi Pharmaceutical Industries (**)), ANTEJI BHT (Kawaguchi chemistry (**)), IRUGA NOx 1076 (tiba SUPESCHARUTI KEMIKARUZU (**)), IRUGA NOx 1010 (tiba SUPESCHARUTI KEMIKARUZU (**)), ADEKA stub AO-60 (Asahi electrification (**)), Sumi Reiser BP-101 (Sumitomo Chemical (**)), TOMINOKKUSU TT (Yoshitomi Pharmaceutical Industries (**)) and TTHP (Toray Industries (**)), IRUGA NOx 3114 (tiba SUPESCHARUTI KEMIKARUZU (**)), ADEKA stub AO-20 (Asahi electrification (**)), ADEKA stub AO-40 (Asahi electrification (**)), SUMIRAIZA BBM-S (Sumitomo Chemical (**)), reed NOx BB (Yoshitomi Pharmaceutical Industries (**)) ANTEJI W-300 (Kawaguchi chemistry (**)), IRUGA NOx 245 (tiba SUPESCHARUTI KEMIKARUZU (**)), ADEKA stub AO-70 (Asahi electrification (**)), Tomi Knox 917 (Yoshitomi Pharmaceutical Industries (**)), ADEKA stub AO-80 (Asahi electrification (**)), Sumi Reiser GA-80 (Sumitomo Chemical (**)), etc. are mentioned.

[0039] As an example of a sulfur system anti-oxidant, dilauryl -3, 3'-thiodipropionate, Dimyristyl -3, 3'-thiodipropionate, distearyl -3, 3'-thiodipropionate, Pentaerythritol tetrakis (3-laurylthio propionate), SUMIRAIZA TPL (Sumitomo Chemical (**)), reed NOx DLTP (Yoshitomi

Pharmaceutical Industries (**)) Anti OKKUSU L (Nippon Oil & Fats (**)), Sumi Reiser TPM (Sumitomo Chemical (**)) Reed NOx DMTP (Yoshitomi Pharmaceutical Industries (**)), anti OKKUSU M (Nippon Oil & Fats (**)) SUMIRAIZA TPS (Sumitomo Chemical (**)), reed NOx DSTP (Yoshitomi Pharmaceutical Industries (**)) Anti OKKUSU S (Nippon Oil & Fats (**)), ADEKA stub AO-412S (Asahi electrification (**)), SEENOX 412S (SHIPRO formation (**)), Sumi Reiser TDP (Sumitomo Chemical (**)), etc. are mentioned.

[0040] the inside of these -- IRUGA NOx 1010: matter name: pentaerythrityl-tetrakis [3-(3, 5-G t-butyl-4-hydroxyphenyl) propionate] IRUGAFOSU 168: Matter name : A tris (2, 4-G t-buthylphenyl) FOSU fight, IRUGA NOx 1076: Matter name : Octadecyl-3-(3, 5-G t-butyl-4-hydroxyphenyl) propionate, IRUGA NOx 1330: Matter name: 1, 3, 5-trimethyl -2, 4, 6-tris (3, 5-G t-butyl-4-hydroxybenzyl) benzene, IRUGA NOx 3114: Matter name: Tris (3, 5-G t-butyl-4-hydroxybenzyl) isocyanurate, P-EPQ: matter name: tetrakis (2, 4-G t-buthylphenyl) 4, and especially a 4'-biphenylene-G FOSU fight are desirable.

[0041] What is necessary is just to carry out 0.001-1 mass section extent addition of the antioxidant to said propylene polymer resin constituent 100 mass section, when using an antioxidant in this invention. Yellowing etc. can be prevented by this and it is desirable.

[0042] If the concrete example of an activity of the above-mentioned antioxidant is given, it will be example 1: IRUGA NOx 1010. 1,000 ppm PEP-Q The example 2 of 1,000 ppm: IRUGA NOx 1076 1,200 ppm PEP-Q 600 ppm IRUGAFOSU 168 The example 3 of 800 ppm: IRUGA NOx 1010 400-1,000 ppm IRUGAFOSU 168 700-1,500 etc. ppm etc. is mentioned.

[0043] Moreover, as a neutralizer, it is calcium stearate, zinc stearate, magnesium stearate, and hydrotalcite (DHT-4A): empirical formula: $Mg_4.5Al_{1.5}(OH)_{13}CO_3$ and $3.5H_2O$, and $Li_2Al_{1.5}Al_{1.5}(OH)_{13}CO_3$, $3H_2O$, etc. [the "MIZUKA rack H-1" of the Mizusawa chemistry (**)] are desirable.

[0044] especially as an anti blocking agent, the "SAIRISHIA": composition silica system of Fuji SHIRISHIA (**), the "Ms. KASHIRU": composition silica system of Mizusawa Industrial Chemicals (**), etc. are desirable.

[0045] Especially as a slipping agent, an erucic-acid amide, oleic amide, octadecanamide, a behenic acid amide, ethylene bis-octadecanamide, ethylene bis-oleic amide, stearyl erucamide, and oleyl palmitamide are desirable.

[0046] as an antifogger -- (**) -- glycerol monochrome (JI, Tori) olate and (**) glycerol monochrome (JI) Glycerine fatty acid ester compounds, such as Tori stearate, (**) glycerol monochrome (**) palmitate, and (**) glycerol monochrome (**) laurate, Sorbitan laurate, sorbitan palmitate, a sorbitan (Tori) SUCHIA rate, Sorbitan fatty acid ester compounds, such as sorbitan (Tori) olate, The polyoxyethylene alkyl (phenyl) ether, polyoxyethylene sorbitan mono-olate, Ethyleneoxide addition products, such as polyoxyethylene glycerol monostearate, Propylene glycol fatty acid ester, such as propylene glycol mono-laurate, propylene glycol monopalmitate, propylene glycol monostearate, and propylene glycol mono-olate, etc. can be mentioned. It can have two or more these antifoggers, and they can also be. By the activity of an antifogger, the cloudiness by the steam from a RAPPINNGU object can be prevented, and display commodity value by maintenance of fluoroscopy nature can be made high.

[0047] When using a nucleating agent, it is usually 10 ppm or more to the resin constituent which consists of a propylene polymer [I] and an olefin system polymer, and the range of the addition of a nucleating agent is 10-10,000 ppm preferably, and the range of it is 10-5,000 ppm more preferably, and it is 10-2,500 ppm still more preferably.

[0048] The resin constituent which forms the wrap film of this invention can be manufactured by the approach of pelletizing the various additives added according to said propylene polymer [I], specific olefin system polymer [II], and specific need with melting kneading machines, such as the specified quantity in addition the usual approach, for example, an extruding press machine, and a Banbury mixer.

[0049] Thus, as an approach of forming the wrap film of this invention using the obtained constituent pellet, the T dies casting fabricating method, an inflation-molding method, the calender fabricating method, etc. are employable, for example. In the shaping approach of a film, resin is heated, extruded and cooled at about 190-270 degrees C, and shaping resin temperature

is produced at them. In addition, as the cooling approach, air cooling and which water-cooled are also employable.

[0050] As for the wrap film of this invention, a non-oriented film also fully has a function as a wrap film. However, biaxial stretching can also be carried out by the well-known approach as occasion demands. The cut nature of a wrap film can be raised by this drawing. 5-40 micrometers, the range of the thickness of the wrap film of this invention is 10-20 micrometers, and it is usually preferably determined suitably in consideration of the application of a wrap film, an activity gestalt, etc.

[0051] Although the wrap film of this invention is based on the monolayer film which consists of said resin constituent, it can also be used as the multilayer film which has at least the layer which consists of this resin constituent further. As a multilayer film, you may be the case of the multilayer film in within the limits of the requirements for the specific propylene polymer [I] used by this invention, and the multilayer film which consists of a resin constituent with which additive formulas differ is [requirements and a presentation ratio may be the same and] sufficient.

[0052] Moreover, it can also consider as the multilayer film which consists of a resin constituent layer which forms the wrap film of this invention, and one or more layers suitably chosen from other olefin system resin. In this case, 1 to 99%, it is 20 - 80% of range, and it can employ the description of this invention efficiently that this layer comes to a piece outer layer at least, and the ratio of the layer which consists of a resin constituent containing a specific propylene polymer [I] has it. [preferably desirable] In addition, as other olefin system resin of a multilayer film, it can choose from the olefin system resin explained in full detail by the olefin system resin [II] in said resin constituent suitably, and can use.

[0053] Thus, it does not have blowdown of the harmful matter at the time of abolition incineration, and is kind also to earth environment while the wrap film of obtained this invention has safety, flexibility, wrapping nature (adhesiveness), transparency, deformation recoverability, anti-stick property, good cut nature, etc. Therefore, the wrap film of this invention can be suitably used as business use and a home wrap film as the resin foaming tray package of food, refrigeration, refrigeration, and an object for preservation.

[Translation done.]

* NOTICES *

JPO and NCIP are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

EXAMPLE

[Example] Although this invention is explained still more concretely below based on an example, this invention is not restricted at all by these examples.

[0055] manufacture (**) of a propylene polymer [I] -- 3.0g (6.97mmol) of the lithium salt of - (2 (1, 2'-dimethyl silylene), 1'-dimethyl silylene) screw (indene) is dissolved in the synthetic SHURENKU bottle of synthetic (1, 2'-dimethyl silylene) (2, 1'-dimethyl silylene) - screw (3-trimethylsilylmethyl indenyl) zirconium dichloride of a complex at THF 50mL, and it cools at -78 degrees C. Iodine methyl trimethyl silane 2.1mL (14.2mmol) is dropped slowly, and it stirs at a room temperature for 12 hours. A solvent is distilled off, ether 50mL is added and a saturated-ammonium-chloride solution washes. After liquid separation, the organic phase was dried, the solvent was removed and 3.04g (5.88mmol) was obtained for - (2 (1, 2'-dimethyl silylene), 1'-dimethyl silylene) screw (3-trimethylsilylmethyl indene). (84% of yield)

[0056] Next, 3.04g (5.88mmol) and ether 50mL are put for - (2 (1, 2'-dimethyl silylene), 1'-dimethyl silylene) screw (3-trimethylsilylmethyl indene) obtained above by the SHURENKU bottle into the bottom of a nitrogen air current. - Stir at a room temperature for 12 hours after cooling at 78 degrees C and adding n-BuLi (hexane solution 1.54M) 7.6 mLs (11.7mmol). 3.06g (5.07mmol) was obtained by making lithium salt into an ether adduct by distilling off a solvent and washing the obtained solid-state by hexane 40mL. (73% of yield) Result of measurement by ¹H-NMR (90MHz and THF-d8): delta It was 0.04 (s, 18H, trimethylsilyl), 0.48 (s, 12H, dimethyl silylene), 1.10 (t, 6H, methyl), 2.59 (s, 4H, methylene), 3.38 (q, 4H, methylene), and 6.2-7.7 (m, 8H, Ar-H).

[0057] The lithium salt obtained above under the nitrogen air current is dissolved in toluene 50mL. - The toluene (20mL) suspension of 1.2g of zirconium tetrachlorides which cooled at 78 degrees C and were beforehand cooled at -78 degrees C here (5.1mmol) is dropped. It stirs at a room temperature after dropping for 6 hours. The solvent of the reaction solution is distilled off. 0.9g (1.33mmol) was obtained for - (2 (1, 2'-dimethyl silylene), 1'-dimethyl silylene) screw (3-trimethylsilylmethyl indenyl) zirconium dichloride by recrystallizing the obtained residue from dichloromethane. (26% of yield) Result of measurement by ¹H-NMR (90MHz and CDCl3): delta It was 0.0 (s, 18H, trimethylsilyl), 1.02, 1.12 (s, 12H, dimethyl silylene) and 2.51 (dd, 4H, methylene), and 7.1-7.6 (m, 8H, Ar-H).

[0058] (b) a polymerization agitator and the autoclave made from stainless steel of 10l. of content volume of a propylene -- 4l. of n-heptanes, and triisobutylaluminum -- the sequential charge of methyl aluminoxane (made in Albemarle) 2 millimol and the - (2 (1, 2'-dimethyl silylene), 1'-dimethyl silylene) screw (3-trimethylsilylmethyl indenyl) zirconium dichloride 2 micromole obtained with the above was carried out further 2 millimol. Subsequently, introducing hydrogen to 0.06MPa(s) (gauge) and raising temperature to 60 degrees C, propylene gas was introduced until it was set to 0.8MPa(s) (gauge) with total pressure, and the polymerization was started. During the polymerization, propylene gas was continuously supplied with the pressure governor so that total pressure might be set to 0.8MPa(s) (gauge). At the temperature of 60 degrees C, after performing a polymerization for 30 minutes, the propylene polymer [I] was obtained by drying contents under ejection and reduced pressure.

[0059] (c) It measured by the approach indicated in the measurement aforementioned

description text of the assessment **. pentad molar fraction of a propylene polymer.

** . Limiting viscosity [eta] Measurement In 135 degrees C, it measured using the VMR-053 mold automatic viscometer of RIGOSHA among the tetralin solvent.

** . -- the amount of components eluted below 25 degrees C in temperature programmed chromatography -- the amount W25 (mass %) of the component eluted without adsorbing a bulking agent in the column temperature of 25 degrees C of TREF [in / as follows / an elution diagram] was calculated.

(a) It introduces into the TREF column which adjusted the operation information sample solution in temperature of 135 degrees C, subsequently lower the temperature to 0 degree C gradually at 5 degrees C/hour in temperature fall rate, hold for 30 minutes, and make a sample stick to a bulking agent. Then, temperature up of the column was carried out to 135 degrees C with the programming rate of 40 degrees C/hour, and the elution diagram was obtained.

[0060]

(b) Equipment configuration TREF column : GL Saiensu-Sha make Silica gel column (4.6phix150mm)

Flow cell : GL Saiensu-Sha make 1mm of optical path lengths KBr cel Liquid-sending pump : SENSUU science company make SSC-3100 pump Bulb oven : GL Saiensu-Sha make MODEL554 oven (high temperature form)

TREF oven: GL Saiensu-Sha make Two-trains thermoregulator : Physical science industrial company make REX-C100 thermoregulator Detector : Infrared detector for liquid chromatography Product made from FOXBORO MIRAN 1A CVF Method bulb of ten : Made in Barco Electric bulb : Made in Barco 500 microliter loop formation [0061]

(c) Measuring condition Solvent : o-dichlorobenzene Sample concentration : 7.5g/l. Injection rate : 500 microliter Pump flow rate : A part for 2.0ml/ Detection wave number : 3.41 micrometers Column packing material : Chromosorb P (30-60 meshes)

Column temperature distribution : Measurement of less than **0.2 degree-C**. molecular weight distribution (Mw/Mn) GPC measuring device: WATERS 150C Column : TOSO GMHHR-H(S) HT Detector : RI detector for liquid chromatograms Solvent : 1,2,4-trichlorobenzene Measurement temperature : 145 degrees C The rate of flow : A part for 1.0ml/ Sample concentration : 2.2mg/ml Injection rate : 160 microliter Calibration curve : Universal Calibration Analyzer: HT-GPC (Ver.1.0)

[0062] ** . After fusing 10mg of samples for 3 minutes at 220 degrees C under nitrogen-gas-atmosphere mind using a DSC measurement differential scan mold calorimeter (the Perkin-Elmer make and DSC-7), the peak top of the maximum peak of the crystallization exoergic curve obtained when the temperature is lowered to -40 degrees C by part for 1-degree-C/was set to crystallization temperature:Tc. Furthermore, after holding for 3 minutes at -40 degrees C, the amount of fusion endoergic obtained by carrying out temperature up by part for 10-degree-C/was set to deltaH. Moreover, the peak top of the maximum peak of the fusion endoergic curve obtained at this time was set to melting point:Tm.

[0063] (d) The physical-properties (1) meso pentad molar fraction of a propylene polymer [I] (mmmm) : 0.45(2) [rrrr/(1-mmmm)]:0.044[rrrr:0.024]

(3) limiting viscosity [eta] : amount of components (W25): eluted below 25 degrees C in 1.5-deciliters [/g] (4) temperature programmed chromatography -- 91 mass % (5) molecular-weight-distribution (Mw/Mn): -- 2.0 (6) melting-point: -- amount of 81-degree-C(7) fusion endoergic (deltaH): -- 25 J/g (8) melt flow rate (MFR:230 degree-C load: 21.18Ns): -- 6g / 10 minutes

[0064] an example 1 - 4 (**) -- the propylene polymer [I] obtained by the manufacture above of a pellet -- phenolic antioxidant: -- 1010:500 ppm of IRUGA NOx and 168:1000 ppm of Lynn system antioxidant:IRUGAFOSU were added, extrusion molding was carried out at resin temperature:200 degree C using the monopodium extruding press machine (35 to TLC20 mold, made in the Tsukada tree machine factory), and the pellet was obtained.

[0065] (b) The pellet and the product made from Idemitsu Petrochemistry which may be the manufacture aforementioned (**) of a wrap film IDEMITSU PP The dryblend of F-704NP (melt flow rate: 7g / 10 minutes) and the F-734NP (melt flow rate: 6g / 10 minutes) was carried out by the ratio shown in a table 1. Subsequently, the wrap film with a thickness of 20 micrometers was

obtained on the following film production conditions using VS40 ***** and T dies casting making machine made from Tanabe Plastics Machine.

[0066]

- 製膜条件
- ・ダイ出口樹脂温度：230℃
 - ・チルロール温度：30℃
 - ・引き取り速度：18m/分

[0067] (c) conditioning was performed for all of the assessment profit **** wrap film of a wrap film for 16 hours or more at temperature **2 degrees C and 50**10% of humidity of 23 degrees C, and the following item etc. was evaluated under the same temperature and humidity. An assessment result is shown in the 1st table.

** Transparency (haze)

JIS It measured based on K7105.

** **** yield strength and modulus of elasticity in tension JIS K It measured by the tension test based on 7127.

- crosshead rate: -- 50 mm/min and measurement direction: -- the direction of a machine (the direction of MD)

[0068] ** It wrapped with the wrap film which cut opening of the vat made from wrapping nature 1 stainless steel (inside-dimension method 125x180x depth: 70mm) into 160x220mm. After one-week neglect judged O and except [its] for the case where a wrapping condition is held without a film's separating, as x at 5 degrees C.

[0069] ** Put the wrap film which separated from the shorter side side 50mm 30mm, and was cut into 160x170mm on opening of the vat of the wrapping nature 2 above, and make an angle vat stick the lug of a film to it. Then, the film was extended one by one from the central edge, and the coat of opening was tried. The case where O and all failed in the case of a success O and 30mm by the case where all were successful 50mm and wrapping is able to be completed 30mm was judged to be x.

[0070] ** Opening of an angle vat was wrapped like the anti-stick property wrapping nature 1, and the center section was continuously poked with the finger slowly. O and the case of being other were judged for the case where it is not torn in the bottom of an angle vat, as x.

[0071] ** One side put the die which is 45mm on the center section of the same angle vat as the deformation (elasticity) recoverability wrapping nature 1, and wrapped it by the same actuation as the wrapping nature 1. Subsequently, the center section of the film was slowly poked with the finger, when hitting the die put on the bottom, the finger was lifted from the film and the condition of 3 minutes after was observed. ** and the case where it was torn were judged for the case where O and saccate marks remain the case where it restores as before, as x.

[0072] The wrap-film [trade name made from the polyvinylidene chloride of example [of a comparison] 1 marketing: Saran Wrap R () by Asahi Chemical Co., Ltd. was similarly estimated as the example 1.) A result is shown in the 1st table.

[0073]

[A table 1]

第1表

組成比 (質量%)		実施例1	実施例2	実施例3	実施例4	比較例1
プロピレン重合体 (I)		70	70	90	50	—
オレフィン系 重合体 (II)	F-704NP	30	—	10	50	—
	F-734NP	—	30	—	—	—
ラ ッ プ フ ィ ル ム の 評 価	ヘーズ (%)	0.3	0.3	0.5	0.6	0.3
	引張弾性率 (MPa)	130	130	70	270	1250
	引張降伏強度 (MPa)	8.3	8.0	6.4	11.4	降伏点存在せず
	ラッピング性1	◎	◎	◎	◎	◎
	ラッピング性2	◎	◎	◎	○	×
	耐突き刺し性	◎	◎	◎	◎	×
	変形回復性	◎	◎	◎	◎	×

[Translation done.]